CENTRAL INTELLIGENCE AGENCY REPORT

INFORMATION REPORT

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25X1

THIS IS UNEVALUATED INFORMATION

25X1 in Warnemuende includes the Schiffswerft Wismar (Wismar Shipya[redacted]
25X1 Werft Warnemuende (Warnow Shipyard in Warnemuende), the Dieselmotoren-Werk
25X1 VEB (Diesel Engine Works in Rostock, Nationalized Plant), the Schraubenfabrik Finsterwalde VEB (Finsterwalde Screw Works, Nationalized Plant), the Schiffsmontage (Ship Assembly) Rostock/Warnemuende - Wismar and the Konstruktionsbuero Berlin (Berlin Designing Office).

2. Under the new Five-Year Plan, the Schiffswerft Wismar was assigned a production [redacted] pe 1 motor vessels of 1,200 GRT each, 5 type II motor vessels of [redacted] h and 20 type F 1 trawlers of 800 GRT each. A reparations quota [redacted] about 40 percent of the total capacity of the yard was also assigned. [redacted] meter building slips, one 170 x 60-meter slip, and one 170 x 70-meter [redacted] dock are to be added to the equipment of [redacted] under the Five-Year Plan. The slips will be of the so-called cable-crane t[redacted] cable being designed for a lift capacity of 5 tons. The floating doc[redacted] e capable of accommodating ships up to 4,500 GRT. Four gantry cranes up to [redacted] nd two portal cranes up to 3 tons lift capacity are also to be erected on the quays.

3. The Warnow Werft Warnemuende is scheduled to build two type III motor vessels of 5,000 GRT each and two type IV motor vessels of 8,000 GRT each under the Five-Year Plan. The reparations quota assigned to the shipyard has not been determined. The equipment of the yard is to be supplemented by two 220 x 35-meter slips and a dry dock for ships of 12,000 GRT.

4. The Dieselmotoren-Werk Rostock VEB was assigned a production quota of 65 marine Diesel engines, of which 33 of 1,600 HP each are intended for the ships of types I to IV, 22 of 800 HP each for the type F 1 trawlers, and 10 Diesel engines of 400

[redacted]

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25X1

6. The Schraubenfabrik Finsterwalde VEB was ordered to supply all plants of the VVW Hochseeschiffbau with nails, screws, bolts, rivets, etc. (4)

7. The Schiffsmontage (Ship Assembly) Rostock/Warnemuende - Wismar VEB received an order for the interior fittings of the ships to be built in the shipyards. It is highly probable that Schiffsmontage Rostock VEB will be incorporated into the Schiffswerft W[redacted]

8. The general management of the building program fo[redacted] I to IV, will be under Dirks (fnu), formerly mana[redacted] Schiffswerft Wismar. Probably, Dirks will go to Warnemuende. Likewise, the engineering bureau of the Schiffswerft Wismar is to assign two designers to Warnemuende. (5)

9. A conference attended by representatives of all plants concerned of the Soviet Zone of Germany was held in Halle/Saale on 21 November 1950. The building program for Types I to IV was on the agenda, and the following representatives attended the conference:

Name	Plant
Dirks, (fnu)	Manager, Schiffswerft Wismar (at present)
Hildebrandt, (fnu)	Section chief, Schiffswerft Wismar
Drape, (fnu)	Production manager, VEM - Schiff Rostock
Schaefer, (fnu)	Engineer, Neptunwerft Rostock
Boehm, (fnu)	Managing engineer, VVB Maschinenbau Rostock
Forst, (fnu)	Section chief, VVB Maschinenbau Rostock
Boesch, (fnu)	Engineer, Rostocker Industriewerke
Schueler, (fnu)	Engineer, Konstruktionsbuero Berlin
Welz, (fnu)	Engineer, VVB Abus, Halle
Kalthoff, (fnu)	Engineer, EKM Halle
Schneider, (fnu)	Chief engineer, EKM Gruppenverkauf Halle
Lehnert, (fnu)	Chief Engineer, EKM Gruppenverkauf Halle
Lorenz, (fnu)	Sales manager, GVS Rosslau
Pramor, (fnu)	Engineer, EKM Elbe, Werk Rosslau
Scheiner, (fnu)	Chief designer, EKM Elbe, Werk Rosslau
Freier, (fnu)	Chief engineer, EKM A.K.P.
Walter, (fnu)	[redacted]
Mueller, (fnu)	
Heyroth, (fnu)	
Schreiber, (fnu)	Engineer, VVB MWM Praezisa, Chemnitz
Hinze, (fnu)	Section advisor, EKM
Haupt, (fnu)	Chief engineer, EKM Turbinenfabrik Dresden
Reichenbach, (fnu)	EKM designing office

Weissleder, (fnu)	Chief engineer, EKM designing office
Reitmeier, (fnu)	Engineer, EKM PVDK
?	Engineer, EKM compressors Zwickau.

25X1 [redacted] Comments.

(1) The reparations quota for 1949 was fulfilled 93.56 percent by the Werft Wismar by January 1951. For 1950, only 80 percent of the quota was fulfilled. The reparations quota for 1951 to 1955 is to be increased considerably by the SKK, according to information received.

(2) No definite information is available on the HP output of the Diesel engines for Type I to IV ships; 1,000 HP engines were reportedly planned. The 1,600 HP engine possibly is the 8 cylinder, Type 203, two-stroke engine which is mentioned as being under development in the description of the main engine plant. For a description of propelling plants for Type I, III and IV ships, a technical description of the 3- and 5-ton loading winches for Type I/II/III/IV ships, and for constructional data on auxiliary engines of Type I/II/III/IV ships, see Annexes 1-4. For a tracing of the Type I merchant ship [redacted]

25X1 (3) This designing office probably is the so-called Konstruktionsbuero Reiners (Reiners' Designing Office) in Berlin-Wuhlheide. In 1950, thi[redacted]

[redacted] Company) by the Deutsche Schiffs-Revisi[redacted]ssifikation (German Ship Survey and Classification Company) (DSR[redacted]

(4) The Norddeutsche Zeitung, Schwerin, on 1 December 1950 reported that Schraubenfabrik Luckenwalde is to supply screws, etc. The plant is scheduled to increase its production 1,400 percent over its 1950 production by 1955.

(5) The head of the engine-designing office of the Werft Wismar is Hildebrandt (fnu); head of the shipbuilding office of the yard is Wahl (fnu).

Description of the Engine Plant for the Types I, II, III and IV Motor Ships.

The Types I to IV engine plants are of similar design. Hence, except for their operating data, their descriptions are identical. The description [redacted] but is not believed to differ. The following [redacted] numerical data on the power, dimensions, etc. of the main propulsion Diesel engines in tabular form, [redacted] of the four types of auxiliary engines [redacted]

Data on the Types I, III and IV - Main Propulsion Plants

	I	III	IV
Main Diesels, number of engines	1	4	8
total horsepower (H.P.)	1,000	4,000	8,000
Propeller, number of screws	1	1	2
Reduction ratio engine: propeller	2,73/1	3,75/1	3,75/1
Production revolutions per minute (r.p.m.)	165	120	120
Hydraulic coupling	not available	available according to regulations	
Capacity of lubricating oil discharge tanks in cubic meters	1	5	12
Lubricating-oil supply	4.1 t	40 m^3	85 m^3
Lubricating-oil reserve tank, m^3	-	5	12
Calibrated fuel measuring tank, liters	10	50	150

As an example of the texts of the descriptions that of the Type-III engine plant is given.

Description of Machinery for Type III Ships.

I. Power Plant

1. Main Engines

The ship is propelled by four compressorless, 6-cylinder, 4-cycle, plunger-piston Diesel engines with precombustion chamber and supercharged by a type DMR 408 exhaust-driven turbine. The engine is of the directly reversible type. The engine develops 1,000 HP operating at 450 r.p.m., the bore of cylinder is 350 mm and the stroke 430 mm. It is started by compressed air. The exhaust gases of each engine are carried separately into the open air after passing through the exhaust-driven turbine for the supercharger and the muffler. A water-cooling and lubricating oil pump and also a cooler and lubricating oil filter are geared to each engine.

Cooling System

The water-cooling pumps, which are attached to the engines, have a capacity of 45 cubic meters per hour with a manometric delivery head of 30 meters. They suck through a filter from the connection piping of the sea-valve boxes, one of which is arranged on the starboard side, the other on the port side of the ship. The pumps force their water over board through the attached oil-coolers, the cooling chambers of the cylinder liners, the cylinder covers and the exhaust manifolds. Zinc protection plates are fitted inside the cooling chambers of the cylinders and similar arrangements. Between the suction piping of the water-cooling pumps and the drain piping, a by-pass conduit is fitted. This device makes it possible, in cold weather, to circulate the amount of cooling water to the engine.

Lubrication

The lubricating oil leaving the engines is coll[redacted] discharge tank which is installed in the double[redacted] Its capacity is 5 m^3. The attached lubricating[redacted] city of 10 cubic meters per hour and a manometr[redacted] suck the oil from the discharge tank and force it again [redacted] tive engine through the filter and oil cooler. A space of 40 m^3 is available in the double bottom for storing the lubricating oil. An emergency supply of lubricating oil of a volume of 5 m^3 is contained in a tank located in front of the piston rod collar bulkhead. A lubricating oil separator with a capacity of 120 to 300 liters per hour purifies the lubricating oil. The feed and force pump, which is connected to the separator, works on the shunt circuit, and the oil is sucked from the discharge tank and forced into the feed tank of the separator. The purified oil flows back straight into the discharge tank. If need be, the entire amount of oil of the discharge tank can be exchanged. For this purpose, a used-oil tank of 5 m^3 is installed in the double bottom from which the oil is forced up by the auxiliary lubricating oil pump. This oil is forced into the separator by a feed pump through a preheating tank, and from the separator it is forced into the emptied lubricating oil supply tank by means of the force pump. The fuel flows to the fuel pumps from an fuel-oil daily-service, tank which is fitted in the engine-room trunk on a level with the lower deck[redacted] passing through a change-over double filter and a single filter.[redacted] measuring the fuel consumption of the main engines a measuring ta[redacted] a gauge and holding 50 liters will be installed. The measuring t[redacted] filled from the daily-service tank. The internal combustion engines are fitted with a speed governor. The required number of thermometers and manometers are also available, and so are the instruments needed for making graphs of the engine performance.

2. Gears

A single-stage cog-wheel gear fitted with hydraulic clutches is installed for transmitting the power of the four main engines to a common propeller shaft and for reducing the revolutions of the engines from 450 r.p.m. to 120 r.p.m. as required for the propellers. The cog-wheels are helical. A special system has been adopted for lubricating and cooling and for the gear clutches. It will be fitted with a special oil pump which is driven by the transmission. The oil for the hydraulic clutches is tapped from an elevated tank, which is fitted in the engine-room trunk on a level with the upper deck. By an attached pump, oil is sucked from the gear-oil drain tank in the double bottom and forced into the elevated tank, from where it flows again to the clutches. The gear is fitted with thrust bearings which take up the axial thrust of the cog-wheels and the thrust of the propellers.

3. Shaft Lead and Propeller

The propeller shaft is made of open-hearth steel and fitted with a flanged clutch at one end. The bearings are lined with bronze bushings, and the shaft is protected from seawater corrosion by suitable means of preservation applied between the bronze linings. Two running shafts are arranged between the propeller shaft and the transmission. The runner bearings are fitted with a flange at either end, and each running shaft rests on two journal bearings. The stem-tube is made of cast iron. It is fixed to the strengthened stuffing-box bulkhead by means of a flange and screwed fast to the stern post by means of a cast-steel nut. The stem-tube bearings are lined with Novotex rods. Prior to being installed, the stem-tube must be submitted to a pressure test of 4 kg per 10 square mm. The stem-tube is water-cooled and connected to the cooling-water piping. Steam connection is also provided as a protection against icing. The propeller and the propeller nut are made of cast steel. Both propeller boss and propeller shaft are fitted with a rubber ring for preventing the penetration of seawater. For thrust bearings, see gears.

II. Auxiliary Machinery

1. Diesel Generator, Compressor Sets

The current required for the auxiliary machinery and the apparatus, as well as the compressed air required for starting the main engines is generated by the following units installed in the engine-room: One 6-cylinder Diesel generator with compressor with an output of 240 HP and a speed of 400 to 500 r.p.m. The capacity of the direct current generator is 150 kw 220 V. The capacity of the compressor is 200 meters cubed per hour and the terminal pressure is 30 kg per 10 square mm. One 6-cylinder Diesel generator with compressor has the same output as above. One auxiliary Diesel with generator and compressor with an output of 100 HP at 750 r.p.m. The generator yields 57 kw - 220 V, whereas the capacity of the compressor is 60 meters cubed per hour, the terminal pressure being 30 kg per 10 square mm. All Diesel engines are directly coupled to the generators, whereas the generator and the compressor are connected by a disengaging coupling. Starting-air bottles designed for an operating pressure of 30 kg per 10 square mm include two with a capacity of 150 liters each for two 240-HP Diesels and one with a capacity of 100 liters for one 100-HP Diesel engine. The required fuel pumps, lubricating-oil pumps, and cooling-water pumps are attached to the Diesel engines. The engines are cranked by hand.

2. Pump Units

Two naturally aspirating, vertical rotary suction and ballast pumps are available, one has a capacity of 45 cubic meters per hour and a manometric delivery head of 25 meters, the other one has a capacity of 90 cubic meters per hour and a manometric delivery head of 25 meters. These pumps are

driven by electric motors of 8 kw at 1,450 r.p.m. and 15 kw at 1,450 r.p.m. respectively. The pumps suck from outboard, from the main draining conduit, and from the ballast-water tanks, which are in the double-bottom of the ship. They discharge overboard. A naturally aspirating, vertical rotary pump is installed for ordinary draining. The pump has an output of 15 meters cubed per hour with a manometric delivery head of 25 meters. Its electric motor yields 3 kw at 1,450 r.p.m. The pump sucks from the main pump lead and forces outboard. The pump casings of these sets are made of cast iron. The running wheels and fittings are of red cast brass. Two vertical rotary pumps serve as emergency cooling pumps. They have a capacity of 63 meters cubed per hour each and a manometric delivery head of 30 meters and are driven by electric motors of 10 kw each running at 1,450 r.p.m. The pumps are to serve as stand-by sets for the cooling water pumps which are attached to the internal combustion main engines.

The fire pumps to be installed are two vertical rotary pumps, each with a capacity of 40 meters cubed per hour and a manometric delivery head of 80 meters. Each is driven by an electric motor of 15 kw running at 2,900 r.p.m. The pumps suck from overboard and force into the fire main and the deck-wash pipings.

The fuel oil conveyor pump is an electrically-driven vertical geared pump with a capacity of 60 meters cubed per hour and a manometric delivery head of 30 meters. Its casing is made of cast iron, and the fittings are of steel. The pump sucks from the outboard oil intake connections fitted on the port and starboard sides and from the change-over valve boxes of the oil fuel tanks. It forces the oil on deck (for delivery of oil) and, through the change-over valve boxes into the oil fuel tanks. The pump is also fitted with a connection to the ballast main, since it is possible to carry oil fuel also in the water ballast compartments.

The daily-service fuel-oil pump is also a horizontal geared pump. Its capacity is 10 meters cubed per hour with a manometric delivery head of 20 meters. It is driven by a 1.5-kw electric motor running at 1,000 r.p.m. A hand pump serves as a stand-by. The casing is made of cast iron, the fittings of the pump are made of steel. The pump sucks through a change-over valve box from the oil fuel tanks and forces into the daily-service fuel tanks, which are installed on the forward wall of the engine-room trunk. Two horizontally gear pumps serve as emergency lubricating oil pumps and are driven by electric motors of 6 kw each running at 950 r.p.m. The capacity of each pump is 25 meters cubed per hour with a manometric delivery head of 40 meters. The pumps are stand-by sets for the lubricating oil pumps, which are geared to the main engines, and are used in transferring the lubricating oil from the service tank to the dirty-oil tank as well as for discharging outboard.

The water pumping system consists of a sea water pump, a self-aspirating washing-water pump and a drinking-water pump, each with a separate sea water, washing w[redacted] rotary type with[redacted] delivery head of[redacted] the drinking-wat[redacted] are driven by a 2-kw electric motor, and the washing-water pump by a 1.5-kw motor. The speed of each motor is 1,450 r.p.m. The pressure tanks have a capacity of 2 m^3 and 1.5 m^3, respectively. The working pressure is 2.5 kg per 10 square mm. According to the amount of water tapped from the pressure tanks, the pumps are automatically switched on when reaching a pressure of 1.5 kg per 10 square mm, and are switched off at a pressure of 2.5 kg per 10 square mm, by a pressure switch. All the above pump units are installed in the main engine-room.

The emergency dynamo with a compressor geared to it is installed in the engine-room trunk on a level with the upper deck. It provides for emergency lighting, should the main lighting plant fail. The generator has a capacity of 20 kw and a voltage of 220. It is directly operated by 2 36-HP

Diesel [redacted]h is started by compressed air. A starting-air container [redacted] capacity of 30 liters and a working pressure of 30 kg per 10 sq[redacted] installed. The starting-air bottle [redacted] emptied is replenished by a hand-operated compressor [redacted] engine can also be started by hand. The emergency compressor [redacted] capacity of 25 meters cubed per hour and a terminal pressure [redacted] square mm can also be coupled to the generator by means of [redacted]ing. The compressor is used in replenishing the completely emptied starting-air for the auxiliary Diesels. The emergency compressor will be set at rest as soon as there is enough compressed air for starting the auxiliary Diesels by means of the auxiliary compressor. The replenishing operations of the starting-air bottles are subsequently continued by means of the auxiliary compressor. The driving engine, the dynamo and the compressor are mounted on a common foundation plate.

3. Boiler and Equipment

The donkey boiler for supplying the steam heating plant and for heating the fuel oil storage tanks, is a vertical water-tube boiler. The donkey will have a heating surface of 30 m^2 and a working pressure of 4 kg per 10 square mm. It is oil-fired. The donkey will be run by a boiler feed pump with a capacity of 1.2 meters cubed per hour, which is driven by an electric motor. There is also an injector of the same capacity, 1.2 meters cubed per hour. Both the feed pump of the donkey and the injector suck from the feed-water tank, which is installed in the double bottom, and from the condensation tank, and force the feed-water into the donkey.

The blower, which has a capacity of 1,500 meters cubed per hour at an atmospheric pressure of 400 mm, is driven by a 3.5 kw electric motor running at 3,000 r.p.m.

The funnel is mounted above the engine-room trunk. [redacted] accommodate the exhaust pipings of the main and auxi[redacted] of the emergency Diesel. The exhaust pipe of the d[redacted] side the funnel. A fog horn is fitted to the forwa[redacted] It is worked by compressed air reduced to about 10 to 12 kg[redacted] and is operated from the bridge either electrically or by a pull wire.

III. Pipings

The cooling water conduit is made of galvanized seamless steel tubes. The armatures are made of cast iron with red cast brass fittings. The s[redacted] valves are mounted on sea valve boxes which are specially arranged i[redacted] engine-room to starboard and port. The sea valve boxes are fitted w[redacted] sized vents, which can be shut off and which are led upwards onto a [redacted] the upper deck. Blow-off connections for air and steam will also be [redacted] The cooling water drain pipes of the main engines lead to a centrally fitted inspection glass, from where the cooling water is led outboard through a common drain pipe passing through a drain valve. The drain valve is mounted near the water line and a spring-loaded return valve which can be shut off.

The compressed-air pipes are seamless, tested steel tubes. Their armatures are made of wrought iron or cast steel. Both pipes and armatures will be submitted to a pressure test of 60 kg per 10 square mm. The starting-air for the main engines is stored in four compressed-air containers holding 2,500 liters each at a pressure of 30 kg per 10 square mm. Other starting devices available include: one compressed-air container of 150 liters capacity for starting the 150 kw Diesel dynamo, one compressor-air bottle of 100 liters for the auxiliary Diesel and one compressed-air bottle of 30 liters for the emergency Diesel, each working at a pressure of 30 kg per 10 square mm. Each compressed-air container is fitted with a safety valve and a drain piping emptying into the bilge. For actuating the fog horn a separate compressed-air container is available. Two valves, fitted with hose sockets, are mounted in the engine room for tapping compressed-air of reduced pressure. All necessary manometers are available.

The fuel oil and lubricating oil pipings are made of seamless tubes. The armatures are of cast iron with steel fittings. Screw connections (or valves with hose sockets fitted to the walls of the engine-room trunk) are installed to starboard and port on the poop deck for charging and discharging fuel oil. All exhaust pipes are led separately into the funnel. These pipings are made of seamless steel and will be insulated against excessive heat radiation. The mufflers are installed in the engine-room or in the engine-room trunk.

IV. Floors, Stairs and Gratings

The floor in the engine room is made of chequered plates 4 to 5 mm thick. Gratings and stairs are installed as required.

V. Workshops

The workshop is installed at the after end of the engine-room and its equipment includes 1 lathe, 1 (vertical) drilling machine, 1 grindstone, 1 work bench with two vises, and 1 tool locker. The machine-tools are driven by electric motors.

VI. Spare Parts and Inventory

The spare parts will form part of the delivery in compliance with the rules of the DSRK (Classification Company in the Soviet Zone of Germany), and the inventory will be delivered in accordance with special agreements made with the customer (see special list).

VII. General Remarks

The entire engine plant will be built according to the specifications of the DSRK. According to these specifications the essential drawings will be submitted for approval. Individual components will also be tested according to these regulations. Delivery drawings enumerated in a list still to be agreed upon, will be handed to the customer and the ship's staff on the occasion of the delivery of the ship.